

AMENDMENTS TO THE CLAIMS:

Complete Listing of Claims

Claims 1-12 (cancelled)

Claim 13 (currently amended) A method of assembling a flip chip semiconductor device having a polymeric adhesive mechanically bonding a substrate to chip, and filling ~~a~~ the space between contacts including the following steps:

dispensing a controlled amount of a thermosetting adhesive paste onto a patterned substrate having arranged on a contact surface thereof a pattern of conductor traces terminating in contact pads,

aligning a chip having a back surface and having protruding contact terminals protruding from a front surface thereof, such that the contact terminals align with ~~to~~ mating contact pads on said substrate,

thermal compression bonding the contact terminals,

exposing the back surface of the chip to infrared radiation, whereby heat generated causes said adhesive to flow between the contact surface ~~surfaces~~ of the substrate and the front surface of the chip, to surround the contact terminals, and subsequently to solidify, and adhere the assemblage, and

controlling ~~a~~ the ramp time and a duration time, and an the intensity of infrared exposure by a computer input.

Claim 14 (original) A method for assembling a flip chip device as in claim 13 wherein bonding of said terminals is by thermosonic bonding.

Claim 15 (currently amended) A method for assembling a flip chip device as in claim 13 wherein ~~a~~ the time for adhesive to flow between the chip and substrate

and to solidify is equal to or less than a ~~the~~ time for aligning and bonding the contact terminals with the contact pads.

Claim 16 (currently amended) A reel to reel method for assembling a plurality of flip chip semiconductor devices including the following steps:

~~feeding patterned flexible tape, having a sequence of substrates disposed thereon, each such substrate having arranged on a contact surface thereof a pattern of conductor traces terminating in contact pads,~~ stepwise from a reel onto a work station; depositing a rapidly curing thermosetting adhesive is deposited on an unpatterned ~~a specified area of one of said substrates~~ the tape ~~for each device,~~

~~feeding the tape to~~ move the one of said substrates to a ~~the~~ next work station; aligning a semiconductor chip having a back surface and having protruding contact terminals protruding from a front surface thereof, such that the contact terminals align with ~~to~~ mating contact pads on said substrate; and bonding ~~binding~~ the contact terminals with the contact pads by thermal compression bonding;

~~feeding indexing~~ the tape to move the one of said substrates to a further work station having an infrared radiation source; exposing the back surface of said chip to said infrared radiation for a duration whereby the generated the infrared radiation is conducted as heat to ~~causes~~ said adhesive and causes said adhesive to flow between the contact surface surfaces of the substrate and the front surface of the chip, surrounding the contact terminals, and subsequently solidify solidifying to adhere the chip to the substrate to form the assembled device the assemblage; and

winding the tape with the assembled device ~~devices~~ onto a take up reel.

Claim 17 (currently amended) A method as in claim 16 wherein the duration of infrared exposure is less than a time for the alignment and bonding of the chip and the substrate time.

Claim 18 (original) A method as in claim 16 wherein the terminals are bonded by thermo-sonic bonding.

Claim 19 (cancelled)